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Measuring Business Performance

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INTRODUCTION

Keeping score in business is more difficult than it appears to be at first glance. One of the reasons for the difficulty is the very abundance of information that is available to decision makers. Conventional balance sheets and income statements, for example, contain vast amounts of data that can be difficult to absorb and interpret, even in condensed form. Business executives, as well as investors and financial analysts, continually strive, therefore, to reduce quantitative accounting information to a more convenient form. Some believe that a few "key numbers" would be ideal in this regard. One result of these efforts is the development of various kinds of ratios: for example, earnings per share of capital stock, return on investment, return on sales, and so on. For the purposes of this study, these and many other such summary measurements will be described simply as financial indicators.

The Problem

Business enterprises make extensive use of financial indicators as yardsticks for judging the effectiveness of the organization in achieving its objectives. Profit-seeking business entities often establish various indicators as the standards by which progress can be weighed in the effort to attain corporate goals. For example, a corporation's management may have as one of its goals the reduction of dependence on external debt. A popular financial indicator—the ratio of debt to shareholders' equity—is a quantitative measurement that shows very clearly how the company is doing in this regard. And an objective itself may be stated in terms of the quantitative measurement ("achieving a 15 percent return on investment").

The literature of accounting and finance contains many excellent treatises on the purposes, characteristics, and computational approaches of financial indicators. (A selected bibliography appears on page 15.) In spite of the extensive literature, however, not much is known about the day-to-day use of these indicators in business management. There is also a scarcity of information on the variety of possible summary measurements which are most often relied upon by senior executives—and for what purposes. Businesspeople frequently ask, for example, about the financial yardsticks that are most appropriate for planning and monitoring operations.

Another problem with financial indicators is that there are no guidelines, or "generally accepted" computational approaches, as there are in accounting. Each analyst or management group is free to indulge its own tastes in computing various ratios. This lack of uniformity makes comparisons difficult, and sometimes impossible.

In the area of external financial reporting, which is governed by a voluminous collection of generally accepted accounting principles (GAAP), very little attention has been given to the computation and reporting of summary indicators of financial performance. Earnings per share (EPS) is just about the only summary measurement for which GAAP has been defined (Accounting Principles Board Opinion No. 15, May, 1959) and for which disclosure is mandatory.

A related problem is the allegation that managers of U.S. corporations concentrate too much attention on managing for short-term results. "Improving next quarter's earnings per share" is often cited as an example. The critics claim that managerial preoccupation with such short-term quantitative goals tends to discourage risk taking in ventures that have only a long-term payoff, and thereby weakens the ability of U.S. business firms to contend with foreign competition.

The primary purpose of this study was to learn the preferences of a representative group of chief executive officers and other senior executives concerning the ratios and other financial indicators that they use regularly for various types of decision making. The study also seeks to identify

Who Should Read This Report

Many Conference Board research projects in the field of business management practices are, by their nature, designed primarily for executives who specialize in some specific functional area of management: human resources, planning, marketing, finance, and so on. Occasionally, however, a topic comes to the surface that does not fit so neatly into an organizational classification. The subject of this report is an example.

While the title might suggest that it is designed primarily for financial executives, the principal input to this study was from chief executive officers (many with nonfinancial backgrounds), who supplied a great deal of information about the various financial indicators that they rely on for various decision-making purposes and who identified the measurements that they consider most important in guiding their enterprises. The preferences of their peers in this regard is likely to be of considerable interest to other CEO's.

This paper also points out the roles of various financial indicators in planning, budgeting and goal setting, as well as in the administration of executive compensation. Executives who are involved in such activities should find this information useful.

The Conference Board expresses its appreciation to the 101 executives, mostly chief executive officers, who took the time to complete a survey questionnaire for this project, and to those who, in addition, granted interviews and supplied exhibit material.

the indicators that these senior executives consider most important.

Sources of Information

Chief executive officers of a representative group of U.S. corporations were the principal sources of information for this study. A sample of 500 firms was chosen from among the *Fortune* 1,000 industrial companies and 50 firms in service industries were added to the mailing list. A questionnaire was addressed to the chief executives of this group of companies. In addition to the mail survey, follow-up interviews and telephone conversations were held with some of the cooperating executives.

A total of 101 usable survey responses was received. Seventy-eight of the questionnaires were completed by CEO's and twenty-three were answered by other top-level executives (e.g., vice presidents for finance or planning, or the corporate controller). The surveyed executives were asked to indicate the principal areas of management specialization through which they rose to their present positions. Table 1 summarizes the answers to this question.

Nine out of ten of the companies represented in this study are in the manufacturing sector: 49 are durable goods manufacturers and 41 are producers of nondurable products. The remaining 13 firms are in the nonmanufacturing category, principally in the retailing and extractive industries.

Table No. 1: Career Backgrounds of 101 Responding Executives

Background Area	Total	Chief Executives	Other Respondents
Finance	30	17	13
Marketing	25	17	8
Manufacturing	15	15	–
Engineering	9	8	1
Legal	7	7	–
General management	4	4	–
Planning	3	1	2
Research and development	3	3	–
Operations	2	2	–
Petroleum production	2	2	–
Company founder	2	2	–
Industrial relations	1	1	–
Total	103[a]	79[a]	24[a]

[a]Two respondents reported more than one background area.

External Reporting of Financial Indicators

Although the principal thrust of this project is to study the use of financial indicators in managerial decision making, it is enlightening to examine briefly the use of such quantitative measurements in the annual reports of corporations to their shareholders and the public. As already mentioned, earnings per share is the only summary indicator that is presently *required* to be disclosed in a corporation's annual report.

Some companies, however, make voluntary disclosure of other financial ratios in various sections of their annual reports, for example, in the President's Letter, Management Discussion and Highlights, and the Financial Summary. In a recent study of the annual reports of 100 corporations, Professor Charles A. Gibson of the University of Toledo, Ohio, found that, in addition to earnings per share, the following six summary indicators were reported by at least half of the companies:

- Dividends per share
- Book value per share
- Working capital
- Return on equity
- Profit margin
- Effective tax rate

The author concluded that the relative neglect of financial ratio presentation in annual reports is unfortunate because it reduces the potential usefulness of these reports to investors and analysts, expecially in the case of some types of indicators (e.g., accounts receivable turnover) which are difficult to compute from the limited data that appear in the principal financial statements.[1] Gibson also pointed to the great diversity that exists in the computational methods used, which destroys the comparability of the measurements, citing debt ratios as a notable example.

[1]Charles A. Gibson, "Financial Ratios in Annual Reports," *The CPA Journal*, September, 1982, pp. 18-29.

FINANCIAL INDICATORS AND "SHORT-TERM" THINKING

One of the objectives of this project is to study the reactions of senior executives to allegations that U.S. managers focus too much attention on financial indicators that measure short-term results; and that this preoccupation diverts many enterprises from the pursuit of long-term goals. As part of the survey, executives were asked to rate their own companies in this respect, and also to consider the charge as it relates to the business community in general. Table 2 summarizes the responses.

More than seven out of ten survey participants reject the assertion that their own firms' use of financial indicators causes them to focus too intently on short-term results. One board chairman observes: "Since our plan and budget this year is the first year of a five-year plan, it has to be con-

sidered in that perspective—not this year as an end in itself, but as the first step on the ladder that results from strategic planning and assessments for the long term."

Other firms have installed executive incentive compensation plans that assess performance over multi-year periods, thus encouraging managers to think in longer-range terms. And the chairman of the board of a machinery manufacturing company replies that short-term adjustments sometimes have to be made in response to current business conditions; but, he adds: "I have never perceived an action aimed only at creating good performance next quarter."

A number of comments emphasized the importance of balancing short-term and long-term considerations. For example, a company president observes: "I see no practical way that either short- or long-term thinking and planning can be ignored. They both have a vital part to play in organizing and operating a strong, enduring business venture. The balance of emphasis can and does shift between them, but both must be present."

Effects on Business in General

As the table shows, the respondents are nearly equally divided with respect to the effect of short-term indicators on business in general. Many of those who feel that short-term considerations receive undue attention place the blame on outside influences, specifically the investment community and the media. A petroleum company president declares: "The pressure applied by the financial community for quarterly earnings is severely damaging most companies' view as to what the critical measure of performance should be." And the chairman of a consumer products company adds: "The market drives the measurement, and the market is not concerned with the long term."

Other arguments put forth by the respondents in support of the hypothesis that business in general is propelled toward short-term considerations by the financial indicators that it monitors are:

—Financial indicators, by their nature, quite properly reflect the short term.

—Techniques for evaluating investment proposals enhance the attractiveness of short-time horizon projects because the results are more predictable and, therefore, the risks are less.

Table No. 2: Financial Indicators and Short-term Thinking

Foster Short-term Thinking:	*Yes*	*No*	*No Response*
In own company			
CEO's	20	56	2
Other executives	4	16	3
	24	72	5
In business in general			
CEO's	34	36	8
Other executives	12	8	3
	46	44	11

—The level of inflation in the future is unknown and unmeasurable; consequently, short-range projects are attractive.

On the other hand, those who contend that the charge of management myopia brought on by reliance on financial indicators is unfounded feel that:

—Short-term and long-term results are interrelated because, in order to satisfy a firm's needs for long-term financing, good short-term results (as shown by financial indicators) are necessary.

—Responsible boards of directors keep management from excessive concentration on short-term results.

—The charges are exaggerated. As one chief executive sees it: "I find the whole subject of 'U.S. short-term vs. foreign long-term' a typical media event. A complete manager must keep both outlooks in focus and control. A lot of so-called long-term approaches by foreigners is nothing so much as an excuse to cover poor short-term performances."

Again and again, the surveyed executives emphasized that financial indicators constitute only one of a number of tools in a manager's kit and, therefore, should not be blamed for the business community's alleged difficulties with foreign competitors. As the president of a forest products company concludes: "Assuming you have developed short- and long-term objectives for your company (which may be market, product, financial or some combination of them), the financial indicators of performance are a good measuring stick of the company's progress—but not the only ones any good manager uses."

KEY FINANCIAL INDICATORS AND THEIR USE BY SENIOR EXECUTIVES

It would probably be an exaggeration to claim that U.S. businesses are "managed by the numbers." But quantitative measurements of some kind are invariably fed into the decision-making process, at least to some degree, in all profit-seeking enterprises, large and small. Financial indicators are also closely watched by many people outside of the firm's management: for example, bankers, credit grantors, investors and regulatory authorities.

For the purposes of this study, a financial indicator is considered to be any single number that provides a user with an overview or summary of some financial condition, or the results of an activity. The net income amount that is reported on an income statement is a prominent example; but the many varieties of financial ratios are more commonly thought of in connection with financial indicators.

Kinds of Financial Indicators

Because there are no generally accepted rules or customs for the computation of financial ratios, there are almost no limits to the ingenuity of financial analysts in the invention of new relationships for which ratios can be computed. And they are equally resourceful in thinking up refinements in the calculation of some of the old standbys.

While it is not practical to list all of the possible ratios that may be used in business, the following classification system may be helpful in sorting out the more commonly encountered varieties. This system is based on one that is described in a widely used textbook on corporate finance:[2]

- *Profitability ratios*—measure management's overall effectiveness as shown by the returns on sales and investment. Some analysts consider this to be the most important class of financial indicators. The most frequently encountered profitability indicators are: net profit margin (i.e., percent return on sales) and rates of return on various measurements of investment (e.g., shareholders' equity, total capital, total assets, operating assets).
- *Liquidity ratios*—measure the firm's ability to meet its maturing short-term obligations. The current ratio and quick ratio are the most common liquidity indicators. (See page 11.)
- *Leverage ratios*—measure the extent to which a firm is financed by debt. They express the relationship between a company's debt structure and either its shareholders' equity, total capital, or total assets.
- *Activity ratios*—measure how effectively a firm is using its resources. Turnover rates, either for individual asset classes (receivables and inventories), or total assets are common examples. Number of days' sales in accounts receivable is another.
- *Growth ratios*—measure the firm's ability to maintain its position in its industry or in the economy. Rates of change over time in such key figures as sales and net income are common examples.
- *Valuation ratios*--measure the attributes of the firm's capital stock as an investment. Earnings per share, the dividend payout ratio, book value per share and the price-earnings ratio are examples. These indicators help to measure the effectiveness of the management in enhancing the wealth of the shareholders.

[2]J. Fred Weston and Eugene F. Brigham, *Managerial Finance* (Seventh Edition) Hinsdale, Illinois: The Dryden Press, 1981, Chapter 7.

- *Other indicators*—There is a variety of indicators that do not fit neatly into these classifications but are useful in various decision-making situations, nevertheless. Some examples are: the break-even point, cost of capital, and the various screening techniques for evaluating investment proposals (e.g., net present value, internal rate of return, profitability index, and payback).

Frequency of Use and Importance of Various Indicators

One of the purposes of this study is to identify the key financial indicators that are most frequently consulted by chief executive officers and by other high level executives as inputs for various decision-making activities. For this purpose, the survey questionnaire listed 15 widely used ratios and other summary indicators and asked the respondents to indicate the decision-making situations in which they rely on the quantitative indicator in question. They were asked, in addition, to rank the three summary indicators that they consider to be most important.

By a wide margin, return on investment (calculated in several different ways) is not only the most widely used financial indicator, but it is also ranked first and second in relative importance by the greatest number of survey participants. Next in both frequency of use and perception of relative importance is the absolute net earnings amount reported on the income statement. Also ranking high on both counts are the net profit margin (i.e., the return on sales), and the debt ratio (calculated on several bases). The inventory turnover rate figured prominently in the frequency-of-use tabulation; while earnings per share ranked high on executives' ratings of relative importance.

Frequency of Use

Table 3 on pages 8-9 summarizes the executives' responses to the question of which financial indicators they most frequently use for the following decision-making activities:

—Planning, budgeting and goal setting;[3]
—Evaluating investment proposals;
—Appraising performance of managers and units;
—Awarding incentive compensation.[4]

As Table 3 shows, the survey participants volunteered the information that they also refer to financial indicators in such decision situations as:

[3]Readers who would like additional information on the use of quantitative measurements in planning are referred to Rochelle O'Connor, *Resource Allocation and Strategic Planning*, The Conference Board, Information Bulletin No. 99, 1981, and, by the same author, *Tracking the Strategic Plan*, The Conference Board, Report No. 830, 1983.

[4]Those who are concerned with the use of financial indicators in compensation decisions should see Harland Fox, *Top Executive Bonus Plans*, The Conference Board, Report No. 760, 1979; and *Executive Incentives: Long-Term Performance Share Unit Plans*, The Conference Board, Research Bulletin No. 132, 1983.

The Du Pont System of Financial Analysis: A Management Classic

E.I. du Pont de Nemours & Company of Wilmington, Delaware, was a pioneer in the development of financial measurements to facilitate management control. Beginning as long ago as 1919, the company devised a system of charts for tracking, in visual form, the financial results of the company as a whole, and also of the various units within the organization. The charts essentially presented manufacturing, sales and profit data for the various units, and for the company as a whole, showing trends over various periods of time and forecasts for the future. Numerical data supporting the curves plotted on the charts were also presented. These charts did not replace the customary income statements, balance sheets, and other accounting schedules—rather, they were intended to supplement the conventional presentations.

The Du Pont Company has long believed that return on investment is an excellent measurement by which a manufacturing company can assess its effectiveness. The charts were designed to place primary emphasis on this ratio and to permit management to scrutinize the factors entering into its calculation. The company developed and refined a custom-tailored formula for calculating return on investment that has often been described in financial management literature over the years, and that has been much-imitated throughout the business community. It is an outstanding example of the adaptation of the basic concept of a particular financial indicator to the needs of a specific firm. The generalized formula, as it is presently used, is summarized as:

$$\text{Pretax return on investment} = \frac{\text{Pretax Earnings}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Average Gross Permanent Investment}^1}$$

Like many other participants in this study, the Du Pont Company does not rely on only one indicator of business performance. Cash flow, return on sales, turnover, internal rate of return, and earnings per share are also closely monitored. And management further stresses the importance of looking behind the numbers in the process of making business decisions. The strategic goal of the company is maximization of long-term economic value. To achieve this goal, management strives for technological advancements, environmental improvements and other nonquantifiable objectives; profitability is only one of a number of objectives.

As in any dynamic organization, the company continually modifies and refines its system of control. But, over the years, the concept of return on investment has been a prominent feature of the system.

[1]Current assets plus gross property, plant and equipment.

—Assessing overall corporate performance;
—Managing cash flow;
—Reporting to shareholders;
—Managing assets;
—Making decisions regarding financing;
—Making dividend decisions;
—Improving the company's bond rating.

In addition to the 15 financial indicators listed in the survey questionnaire, the cooperating executives also reported a number of other quantitative measurements that they refer to for various purposes. The inclusion of these additional measurements at the end of the table serves to demonstrate the inventiveness of both executives and analysts in devising new kinds of summary indicators. Brief comments on the financial indicators that were mentioned most frequently by the surveyed executives follow.

Return on investment (ROI) (449 mentions). This is a generic term for several highly regarded summary indicators. All of them relate income to some defined basis of investment. The general formulation is:

$$\text{Return on Investment (ROI)} = \frac{\text{Income}}{\text{Investment}}$$

The most frequently encountered measurements of investment are:

—Total capital (i.e., the sum of borrowed capital plus capital supplied by shareholders);
—Shareholders' equity (or, alternatively, "net assets," as reported by some executives);
—Total assets (sum of assets side of balance sheet).

Practice varies as to the refinements that can be made in individual companies' and analysts' computations of both income and the investment base. These variations appear most commonly in situations where segments of a business are being measured. In some cases, for example, "income" may be defined as "before taxes," or "before extraordinary items." And the investment base may be either an average of beginning and ending balances or a 12-month average balance; or it may contain other modifications as executive preferences may dictate.

One of the most interesting and widely imitated variations of ROI is the formula developed many years ago by E.I du Pont de Nemours & Company. (See box.)

Absolute net earnings (290 mentions). Although it is not a financial ratio, the net income amount displayed on an entity's income statement fits the definition of a financial indicator for the purposes of this study. In spite of the widespread use of ratios, the so-called "bottom line" ranks high in both frequency of use and the responding executives' perceptions of its relative importance. As noted

Table No. 3: Key Financial Indicators and Their Applications in Various Decision-Making Situations, As Reported by 78 Chief Executive Officers and 23 Other Senior Executives

Financial Indicators	Decision Applications (number of times mentioned): Planning, Budgeting, Goal Setting	Evaluating Investment Proposals	Appraising Performance of Managers and Units	Awarding Incentive Compensation	Other	Total Mentions
Indicators of Return on Investment:						
Rate of return on total capital						
Reported by CEO's	48	51	35	30		
Reported by other executives	19	16	13	8		
Subtotal	67	67	48	38		220
Rate of return on shareholders' equity						
Reported by CEO's	58	42	21	27	1 (b)	
Reported by other executives	20	12	6	8	1 (c)	
Subtotal	78	54	27	35	2	196
Rate of return on net assets						
Reported by CEO's	2	1	2	2		7
Rate of return on total assets						
Reported by CEO's	5	3	4	5		
Reported by other executives	2		2	1		
Subtotal	7	3	6	6		22
Rate of return on replacement cost of assets						
Reported by CEO's		1	1			2
Internal rate of return						
Reported by CEO's		1				
Reported by other executives		1				
Subtotal		2				2
Total: return on investment	**154**	**128**	**84**	**81**	**2**	**449**
Absolute net earnings						
Reported by CEO's	62	54	56	54	1 (a)	
Reported by other executives	19	10	18	15	1 (a)	
	81	64	74	69	2	290
Debt Ratios:						
Debt to total capital						
Reported by CEO's	58	37	4	1	2 (d) (e)	
Reported by other executives	19	6				
Subtotal	77	43	4	1	2	127
Debt to shareholders' equity						
Reported by CEO's	46	32	1	1	2 (d) (e)	
Reported by other executives	17	5				
Subtotal	63	37	1	1	2	104
Total: debt ratios	**140**	**80**	**5**	**2**	**4**	**231**
Inventory turnover rate						
Reported by CEO's	58	20	57	27		
Reported by other executives	13	6	19	4		
	71	26	76	31		204
Net profit margin (return on sales)						
Reported by CEO's	55	35	45	26		
Reported by other executives	15	9	12	3		
	70	44	57	29		200
Days' sales in accounts receivable						
Reported by CEO's	49	18	51	22	1 (a)	
Reported by other executives	12	3	16	3	1 (a)	
	61	21	67	25	2	176
Cost of capital						
Reported by CEO's	53	65	7	1		
Reported by other executives	14	20	2			
	67	85	9	1		162

Table No. 3: (continued)

Financial Indicators	Decision Applications (number of times mentioned): Planning, Budgeting, Goal Setting	Evaluating Investment Proposals	Appraising Performance of Managers and Units	Awarding Incentive Compensation	Other	Total Mentions
Earnings per share						
Reported by CEO's	46	23	8	20	1 (c)	
Reported by other executives	18	6	6	18		
	64	29	14	38	1	146
Liquidity Ratios:						
Current ratio						
Reported by CEO's	39	16	7	1	2 (a) (b)	
Reported by other executives	12	1	1		1 (a)	
Subtotal	51	17	8	1	3	80
Quick ratio						
Reported by CEO's	30	11	3		3 (a) (b)	
Reported by other executives	7	1			2 (a) (f)	
Subtotal	37	12	3		5	57
Total: liquidity ratios	**88**	**29**	**11**	**1**	**8**	**137**
Break-even point						
Reported by CEO's	43	33	22	3		
Reported by other executives	7	14	3			
	50	47	25	3		125
Dividend payout rate						
Reported by CEO's	45	8		1	4 (a) (d) (e)	
Reported by other executives	14	1			1 (a)	
	59	9		1	5	74
Book value per share						
Reported by CEO's	32	21	1	2	3 (b) (e)	
Reported by other executives	11	2				
	43	23	1	2	3	72

Explanation of "other" decision-making applications:

(a) Planning and managing cash flow.
(b) Appraisal of overall corporate performance (e.g., by the board of directors).
(c) Presentation in annual reports to shareholders.
(d) Working to improve bond rating.
(e) Financing decisions.
(f) Dividend decisions.

In addition to reporting their applications of the indicators listed above, the survey respondents volunteered information concerning their use of other quantitative measurements. The following measurements were mentioned from one to ten times each:

(1) Liquidity indicators:
- Working capital as a percent of sales
- Cash flow

(2) Activity indicators:
- Total sales
- Cost of sales
- Period costs
- Asset turnover rate
- Ratio of assets to sales

(3) Profitability indicators:
- Ratio of operating profit before taxes to sales
- Profit per unit of product

- Actual earnings and cash flow against budget
- Discounted cash flow
- Discounted payback
- Profitability index

(4) Growth indicators:
- Sales growth rate
- Earnings growth rate
- Ratio of sales of new products to total sales
- Sales per employee
- Market share
- Resources required (manpower, R&D, organization)

(5) Other
- Achievement of specific, measurable goals

above, net income is significant not only in its own right, but also as an element in the computation of various ratios.

Although the net income amount reported in a company's income statement is determined in accordance with generally accepted accounting principles, there is nothing to prevent analysts from modifying this figure when it is used for ratio analysis in the management decision-making process.

Debt ratios (231 mentions). Sometimes described as "leverage ratios," these indicators highlight the extent to which a company relies on borrowed capital. The formulations used by responding executives are:

$$(1)\ \text{Debt ratio} = \frac{\text{Total debt}}{\text{Total capital}}$$

$$(2)\ \text{Debt ratio} = \frac{\text{Total debt}}{\text{Shareholders' equity}}$$

Variations in practice exist with regard to the definitions of debt and of total capital. For example, some analysts believe that debt should include only long-term borrowing, while others broaden their definition to include short-term debt and other current liabilities. These variations, of course, affect the definition of total capital as well.

Inventory turnover rate (204 mentions). This important activity ratio measures the number of times within a fiscal period that a company's investment in inventory is recovered, or "turned over." The more frequent the turnover, the greater the profits. The general formulation is:

$$\text{Inventory turnover} = \frac{\text{Sales}}{\text{Inventory}}$$

This is the computation used for reporting turnover by Dun & Bradstreet Inc., which publishes a great deal of statistical business information. For a company that wishes to compare its turnover rate with such published statistics, this formulation should be used.

However, some analysts contend that such a computation of turnover is incorrect. They point out that inventories are recorded on the basis of cost and the numerator of the fraction should be cost of sales, rather than sales, in order to be consistent. This is yet another illustration of lack of standardization in the preparation of financial indicators. Another, less significant, variation in this computation is the number that is used for inventories. Most analysts believe that an average balance should be calculated; but there is no agreement on how refined the average should be.

Net profit margin (200 mentions). The rate of return on sales is an important indicator of a company's profitability. It is calculated, very simply, as:

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}}$$

In their internal management reports, many companies prepare income statements in terms of both absolute dollars and, in an adjoining column, percentages of net sales. Net sales equals 100 percent and the other line items are expressed as percentages of net sales ending with the net profit margin. Changes in these percentages over time can be significant indicators of improvement or deterioration in a firm's profit picture.

Days' sales in accounts receivable (176 mentions). Management is continually interested in the effectiveness of the company's credit function. Just as the inventory turnover rate is important as an indicator of a firm's ability to recover its investment in inventories, so, too, is the measurement of its ability to convert receivables into cash. The number of days' sales in accounts receivable, also known as the average collection period, provides such a measurement. The smaller the number of days, the more rapidly is the firm collecting its receivables. This statistic is calculated as follows:

$$\text{Days' sales in accounts receivable} = \frac{\text{Accounts receivable}}{1/360\ \text{Sales}}$$

Cost of capital (162 mentions). One of the more esoteric financial indicators is a company's cost of capital. It has been defined as "that rate of return which [a firm's] assets must produce in order to justify raising the funds to acquire them."[5] The cost of capital is widely used as part of the process of screening capital investment proposals. In general, if a project does not promise to exceed the firm's cost of capital, it would be economically undesirable to make the investment.

In its simplest form, the cost of capital may be defined as the interest rate that a company must pay currently on any debt that it would incur to finance a project. Most analysts and financial executives, however, would not be satisfied with such a limited concept of cost of capital. Instead, they contend that the computation should be a weighted average of all of the firm's sources of long-term capital, including preferred stock, common stock, and retained earnings. This number is commonly expressed as an annual percentage.

A description of the computation of cost of capital and its conceptual foundations is beyond the scope of this report. But these subjects have been covered in other Conference Board publications (for example, Patrick J. Davey, *Corporate Capital Structures and Financing Plans: 1981-1984.* Information Bulletin No. 97, 1981) and in most corporate finance textbooks.

Earnings per share (146 mentions). The only financial indicator that has been recognized in the determination of generally accepted accounting principles is earnings per share of common stock (EPS). Its computation and reporting are covered in Accounting Principles Board Opinion No. 15, "Earnings Per Share," issued in 1969.[6] In its simplest form:

[5]Wilbur G. Lewellen, *The Cost of Capital.* Dubuque, Iowa: Kendall-Hunt Publishing Co., 1978.

[6]Financial Accounting Standards Board. *Financial Accounting Standards, Original Pronouncements.* Stamford, Connecticut, 1982, p. 214.

$$\text{Earnings per share} = \frac{\text{Net Income}}{\text{Number of shares of common stock outstanding}}$$

However, this computation can become quite complicated when there are shares of convertible preferred stock or other convertible securities outstanding. Further complications can arise when extraordinary items of income or expense are reported in the income statement.

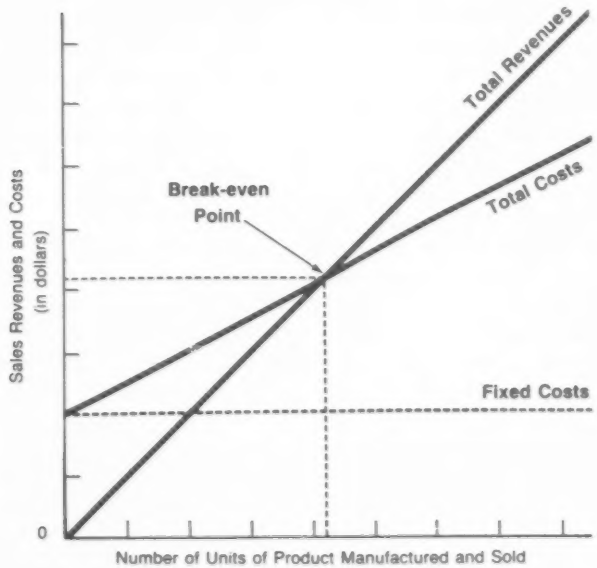
Liquidity ratios (137 mentions). The ability of a firm to meet its short-term financial obligations (its "liquidity") is a major concern of management, as well as of the company's creditors. Two types of liquidity ratios provide measurements of the firm's capabilities in this respect. The first is the current ratio (sometimes called the "working capital" ratio), which relates the firm's current assets to its current liabilities:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

The second indicator is the quick ratio (sometimes called the "acid test" ratio). It is much more stringent in that it measures a company's ability to satisfy its current liabilities only with its more liquid current assets such as cash, marketable securities, and accounts receivable. Inventories are excluded and the formulation is generally:

$$\text{Quick ratio} = \frac{\text{Current assets—inventories}}{\text{Current liabilities}}$$

Break-even point (125 mentions). A helpful form of analysis for management decision making is the determination of the so-called break-even point. This analysis studies the relationships among fixed costs, variable costs, and profits. The purpose is to determine the point at which revenue from sales will just equal total costs. This analysis is illustrated in the following chart:



Below the break-even point, the firm suffers a loss; above that point, it enjoys profits. A more detailed explanation of the computation and presentation of break-even information is available in many corporate finance text books.[7]

Dividend payout rate (74 mentions). The percentage of net income that a company distributes to its shareholders in the form of dividends is of great interest to investors. It is also a matter of concern to company executives. Many corporations strive to maintain a steady payout rate to their shareholders over time, in the belief that such reliability has a beneficial effect on the market prices of their stocks. This ratio is calculated in this way:

$$\text{Dividend payout rate} = \frac{\text{Dividend per share}}{\text{Earnings per share}}$$

Book value per share (72 mentions). The price at which a company's stock is traded in the market may have little or nothing to do with the value of each share of stock according to the company's balance sheet. The book value is calculated as follows:

$$\text{Book value} = \frac{\text{Shareholders' equity}}{\text{Number of shares of common stock outstanding}}$$

The stockholders' equity would, of course, be reduced if there were any shares of preferred stock in the hands of investors.

Comparisons of market prices with book value can be enlightening. For example, a firm whose shares sell for less than book value could be attractive as a takeover candidate because the acquirer might be able to liquidate the assets and thus realize a gain. Executives of companies in this situation may try to take defensive measures to forestall such an acquisition.

Rankings of Indicators

Despite the variety of financial indicators that are available, there are a relatively few "old standbys" that received the greatest number of votes when the surveyed executives were asked to rank the three measures that they regard as most important. Table 4 on page 12 summarizes the total number of times that these popular indicators were ranked first, second, or third by the surveyed executives. Looking only at the number of times that each indicator was ranked first in importance, return on investment (variously estimated) and absolute net earnings receive the most such mentions.

Although these summaries of rankings give a pretty good indication of how the majority of responding executives regard various financial indicators, this is not an absolute judgment. In some situations, a relatively rarely ranked indicator—such as growth rates—for example, could be

[7]For example, J. Fred Weston and Eugene F. Brigham, 1981, p. 224.

Table No. 4: Executives' Rankings of Relative Importance of Various Financial Indicators

Types of Indicator	Numbers of Times Ranked by Survey Respondents: First CEO's	First Others	Second CEO's	Second Others	Third CEO's	Third Others	Total Mentions
Indicators of Return on Investment:							
Return on shareholders' equity	17	4	10	4	9	2	46
Return on net assets	1	2	1				4
Return on total assets	3	1	1	1			6
Return on total capital	14	5	15	6	1	1	42
Return on investment (unspecified)	2		2				4
Internal rate of return		1					1
Subtotal	**37**	**13**	**29**	**11**	**10**	**3**	**103**
Absolute net earnings (in $)	24	5	6	1	6	2	44
Net profit margin (return on sales)	4	1	15	2	12	4	38
Earnings per share	6	2	7	4	7	3	29
Debt ratios:							
Ratio of debt to shareholders' equity	1		3		7	5	16
Ratio of debt to total capital			4	1	5		10
Subtotal	**1**		**7**	**1**	**12**	**5**	**26**
Break-even point	*1*		*1*		*10*		*12*
Activity ratios:							
Inventory turnover rate			4		2		6
Asset turnover rate						1	1
Days' sales in accounts receivable			1		2		3
Subtotal			**5**		**4**	**1**	**10**
Cost of capital	2		1		3	1	7
Current ratio			1		4		5
Growth rates of sales and earnings	1		3	1			5
Growth of new products					2		2
Book value per share					2		2
Cash flow			1		1		2
Total capital					2		2
Achievement of specific goals			1			1	2
Sales volume					1		1
Cost of sales	1						1
Market share					1		1
Dividend payout rate					1		1
Net present value of discounted cash flow			1				1

the single most important indicator for a particular firm at a given time in its history.

Comparisons With Other Companies

Most analysts urge that to give a company's financial indicators greater meaning, they should be compared with external data: other companies' data, industry averages, and the like. This is precisely what the majority of companies taking part in this study actually do. Only 17 out of 101 respondents say that they make no such comparisons.

Companies can refer to a vast quantity of data for the purposes of business intelligence-gathering. Some of it is free for the asking (e.g., corporate annual reports and 10-K's); and other information is packaged and sold by

commercial statistical services (e.g., Dun & Bradstreet, Inc.); still more is published in the popular business periodicals (e.g., *Fortune*). But, among the companies participating in this study, the most frequently consulted sources of comparative data about financial indicators are the statistical compilations offered by trade and industry associations. The following tabulation shows the frequency with which the responding executives reported their reliance on various external sources of data. Many of the executives stated that they refer to more than one such source.

	Number of times mentioned		
External Sources of Comparative Information	*By Chief Executives*	*By Other Executives*	*Total*
Trade association or industry statistics	29	6	35
Analyses of competitors prepared internally.....	16	8	24
Annual and quarterly shareholders' reports and 10-K reports	13	3	16
Dun & Bradstreet, Inc. Key Business Ratios ...	12	3	15
Standard & Poors Compustat Service, Inc.	5	4	9
Fortune "500" and "1,000" statistics	7	2	9
Forbes statistics	5	1	6
Security analysts' reports and reviews	4		4
Newspaper articles about other companies	2	1	3
Robert Morris Associates-Annual Statement studies	1	2	3

Also mentioned once or twice are: Value Line on-line database; Moody's Investors Service; Conference Board economic statistics; *Business Week* statistics; Executive Stock Report: Media General Financial Service, Inc.; PIMS (Profit Impact of Market Strategy) statistics; historical data of one's own company; and press releases issued by other companies.

Reporting Information About Financial Indicators

As one might expect, information about financial indicators is communicated within companies primarily by means of the firms' periodic financial reporting systems. Ninety-eight (all but three) respondents reported that this is the principal method for presenting such data. Unlike the financial reports that are distributed to shareholders and the public and that are prepared in accordance with the strictures imposed by generally accepted accounting principles, internal management reports can include a great deal of other data that are useful in the operations of the business but are not reported externally. (For example, see Exhibit 1 on page 14.)

Information about financial indicators is typically scattered throughout the statements and supporting schedules, in response to the preferences of the senior executives who receive the reports, and in accordance with the inventiveness of the analysts and accountants who prepare them. Exhibit 1 presents the format of a page from a quarterly management-information report used by an oil and gas producing company.

Another widely used vehicle for the internal reporting of financial indicators is a broad class of reports called "special reports and analyses." There is almost no limit to the variety and multiplicity of purposes for which such reports might be prepared. A common example is to use the material to support proposals for major expenditures. Eighty-four companies present financial indicator information in such special reports.

Seventy-nine respondents state that financial indicator information is also put before their managements in graphic form in the course of presentations made by such executives as the chief financial officer, the controller and the planning director. The majority of firms in this study use all three, or at least two out of three, of these reporting media. Only five companies have, up until now, made financial indicator information available to their executives in the form of on-line video displays.

Four chief executives add that they also receive financial indicator information in the form of:

—Reports made to them personally by other company executives;
—Reviews "in situ" with each business unit;
—Special presentations to the board of directors;
—Asking questions and "wandering around."

Inflation Adjustments

Less than half (about 42 percent) of the companies taking part in this study use inflation-adjusted data in the preparation of the financial indicators that they present in their management reporting systems.[1] Many of the companies using such inflation-adjusted data are required by generally accepted accounting principles (Financial Accounting Standards Board Statement No. 33, *Financial Reporting and Changing Prices)* to present certain information to their shareholders on the effects of inflation and, therefore, some of the groundwork has to be done in any case. At least their reported net earnings, inventories, and fixed assets on a consolidated basis, are available on an inflation-adjusted basis.

Only six of the companies using inflation-adjusted data for computing financial indicators apply such adjustments to all (or substantially all) of the ratios that they calculate. Most of these firms state that these adjusted data are used extensively in forecasting and planning. One company uses such information in pricing decisions. The participants who

[1]Francis J. Walsh, Jr., *Reporting Information to Management Under Conditions of Inflation.* The Conference Board, Research Bulletin No. 104, 1981.

Exhibit 1: Business and Financial Indicators (an oil and gas producing company), March 31, 1983.

Corporate Debt and Equity	*Year Ended 6/30/79*	*Year Ended 6/30/80*	*Year Ended 6/30/81*	*Year Ended 6/30/82*	*Quarter Ended 9/30/82*	*Quarter Ended 12/31/82*	*Quarter Ended 3/31/83*	*Year To Date 3/31/83*
Short-term debt (due within one year)	$	$	$	$	$	$	$	$
Long-term debt (excluding debentures)	$	$	$	$	$	$	$	$
Debentures								
Redeemable Preferred Stock								
Total Debt	$	$	$	$	$	$	$	$
Stockholders' Equity (3)	$	$	$	$	$	$	$	$
→ Debt/Equity Ratio (4)								
Debt secured by oil and gas properties	$	$	$	$	$	$	$	$
→ Book net worth per share (1)	$	$	$	$	$	$	$	$
Average Daily Production (2)								
Oil (barrels)								
Gas (millions cubic feet)								
Oil equivalent (barrels)								
Change from previous year								
(Other operating statistics may also be presented.)								

(1) Common Stock outstanding
(2) Average production represents the average for period specified in column heading.
(3) Includes cumulative preferred stock
(4) The ratio equals short- and long-term debt plus debentures and redeemable preferred stock divided by stockholders' equity.

reported that they apply inflation adjustments to financial indicators usually use these adjustments only for a few key indicators, rather than for the entire spectrum.

Following are the financial indicators that the participating executives report as being subject to inflation adjustments, and the number of times each was mentioned:

Indicator	*Number of Mentions*
Return on Investment:	
Return on total assets	5
Return on total capital	4
Return on net assets or shareholders'equity	3
Return on investment (unspecified)	1
Subtotal: return on investment	13
Absolute net earnings	11
Earnings per share	4
Net profit margin (return on sales)	4
Cost of capital	3
Cost of sales or inventories	3
Growth rates	3
Dividend payout rate, inventory turnover rate, book value per share, ratio of debt to total capital, discounted cash flow	1 each

Problems and Limitations of Financial Indicators

Although the executives taking part in this study make widespread use of ratios and other financial indicators of business performance, they do not regard these quantitative yardsticks uncritically. More than half (58 out of 101) of the responding executives state that they have observed various hazards, difficulties or limitations in the use of these measurements.

May Encourage Short-term Thinking

The most frequently voiced criticism is that the indiscriminate use of, or reliance upon, financial indicators may encourage a short-term way of thinking and cause managements to overlook, or play down, longer-range considerations. As an automotive manufacturing company executive sees it: "Financial indicators that report past performance could foster short-term decision making, especially in light of reward systems which utilize the indicators as sole determinants of regular and special compensation. Due to the especially long lead times associated with capital-intensive industries, failure to recognize this tendency and to reduce its impact on the decision-making process would seriously hamper the long-term profitability—even the continued viability—of the company."

The chairman of a paper products company adds that the tendency to think in short-range terms "is not the fault of the indicators, but in how they are used." Another chief executive believes that top management needs to take steps to prevent long-run considerations from being obscured. He observes: "The short term is easier to manage and foresee. So if financial goals are set and managers will be evaluated upon them, they will tend to deal with the more certain short term. To protect the long-term interest, you have to make the more abstract longer-term goals an equal part of each evaluation."

And another board chairman places the blame on external influences for encouraging short-term thinking. He states: "Analysts and money managers compare our figures with those of the competition, and report on such comparisons without indicating whether we are spending more on long-term projects or developing new products. Financial publications also seem to stress the short-term."

Nonquantifiable Factors are Equally Important

Another limitation that is often mentioned is that financial indicators cannot and do not tell the whole story about a company and its operations. Experienced executives emphasize that many qualitative, or nonquantifiable, factors also have a strong bearing on a firm's success and its prospects. The president of a petroleum products company observes: "Financial indicators are only one indicator of performance. Full business performance must be assessed by a broad range of nonquantitative factors which range from customer satisfaction to employee productivity."

Excessive Reliance on One or Two Indicators

A number of study participants mention that it is possible to focus too much attention on only one or two financial indicators as *the* keys to decision making. At various times in the past, critics have pointed to earnings per share as a culprit in this respect because so many investors, security analysts, and the business press have given such prominence to this statistic. Several survey participants observe that all quantitative indicators have limitations, and it can be misleading to rely too much on only one or two of them.

Variations in Accounting Practices

Some responding executives warn that it is dangerous to take financial indicators at their face value, because the assumptions on which they are based may be incorrect and the accounting practices on which elements of ratios are based may not be consistent. Furthermore, the formulations on which the indicators are calculated are subject to variations, as pointed out earlier in this report.

Other Problems and Criticisms

Other caveats mentioned by several participating executives are:

—One accounting period's results are not sufficient; comparison of indicators over time is vital if one is to draw correct inferences.

—Quantification can obscure the real world. For example, financial indicators might encourage retention of obsolete production facilities.

—Indicators summarize past history and may not reflect rapidly changing conditions.

—The impact of changing prices must be understood.

—Some indicators are difficult to understand and to communicate.

—Unsophisticated users may misinterpret indicators.

—Temporary manipulation of ratios is possible.

—Too much attention to competitors' or industry averages may foster mediocrity in a firm.

Additional Readings

Financial ratios and the details of how they are calculated appear in many of the widely circulated textbooks in the fields of corporate finance, investment analysis, and accounting. A few examples are:

James C. Van Horne, *Fundamentals of Financial Management*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 4th Edition, 1980, Chapter 6, "Financial Analysis."

J. Fred Weston and Eugene F. Brigham, *Managerial Finance*. Hinsdale, Illinois: The Dryden Press, Seventh Edition, 1981, Chapter 7.

Glenn A. Welsch, Charles T. Zlatkovich, and Walter J. Harrison, Jr., *Intermediate Accounting*. Homewood, Illinois: Richard D. Irwin, Inc., Sixth Edition, 1982, Chapter 21, Part A.

Erich A. Helfert, *Techniques of Financial Analysis*. Homewood, Illinois: Richard D. Irwin, Inc., Fifth Edition, 1982.

In addition to text materials, articles relating to financial indicators and their use appear from time to time in the business press. Following are some that have attracted recent attention:

Charles A. Gibson, "How Industry Perceives Financial Ratios," *Management Accounting*, April, 1982.

Surendra S. Singhvi, "What is the Real Bottom Line?," *Management Accounting*, February, 1983.

Charles R. Turner, "Analyzing Financial Statements According to Industry Standards," *Credit & Financial Management*, March, 1983.

Michael J. Gombola and J. Edward Ketz, "Financial Ratio Patterns in Retail and Manufacturing Organizations," *Financial Management*, Summer 1983.

Robert H. Hayes and William J. Abernathy, "Managing Our Way to Economic Decline," *Harvard Business Review*, July-August, 1980.